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Adaptation of the ALLP-II Spanish Self-Instructional Program (F. Rand Morton, University of Michigan) to Class Sessions. Final Report.

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An experimental adaptation of the second phase of an autoinstructional Spanish program was conducted at Culver-Stockton College in Missouri during the academic year 1965-66. This report suggests that despite the inconclusive nature of the evidence drawn from the experiment, the relatively high level of student efficiency in vocalization, auditory discrimination, automatism, and reading and writing skills indicates the success of the programed aspects of the course. Symptomatic of the program's real weakness, however, were the excessive number of student dropouts, the lagging student motivation and interest, and the inadequate attendance at scheduled language laboratory sessions. Included in the report is detailed information on the execution of the project and methods of evaluating student progress. Recommendations and suggestions for possible modifications are also given for future adaptations of the program. For a related document, see ED 019 911. (CW)

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FINAL REPORT
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ADAPTATION OF THE ALLP-II SPANISH SELF-INSTRUCTIONAL PROGRAM (F. RAND MORTON, UNIVERSITY OF MICHIGAN) TO CLASS SESSIONS

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FINAL REPORT ON THE WORK DONE IN THE EXPERIMENTAL PROGRAM (SPANISH) AT CULVER-STOCKTON COLLEGE FOR THE ACADEMIC YEAR 1965-66 AND EXPLANATION OF THE CAUSES FOR ITS DEFINITE DISCONTINUANCE AT THE BEGINNING OF THE FIRST SEMESTER OF THE 1966-67 ACADEMIC YEAR

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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INTRODUCTION

The experimental Program of Dr. Morton ("Experimental Use of ALLP Spanish Program") was discontinued in its development, and consequently, it was impossible to attain what was proposed and communicated in the report of June 30, 1966. The reasons for such an interruption will be explained in the first chapter of this report.

It is not possible, therefore, to offer a truly final report about the Program. We will summarize here the most important aspects and also the goals reached before we were compelled to interrupt it.

Since this Program could not be developed in its totality, but only in such activities as explained in detail in our three previous reports, with a total of 119 pages and five charts, our work will be based on the information contained in the previous reports; but we shall try to organize, summarize and present the information objectively, so to facilitate the comprehension of the different conclusions we have reached as Principal Investigator of this Program.

We are indeed sorry that this interesting experiment could not be brought to an end, but the acquired experience justifies, we so believe, the efforts made.

Of course, we cannot offer definite conclusions about the efficiency of a Project which was left unfinished, but we can rationally infer them, based on the results of our investigations during a whole year of intense labor.

If our conclusions could be used as orientations for future experiments, we would feel professionally satisfied and encouraged to make new efforts.

CHAPTER I

PROJECTED MEASURES FOR THE DISCONTINUANCE OF THE PROGRAM IN THE FIRST SEMESTER OF THE 1966-67 ACADEMIC YEAR, AND CAUSES FOR ITS INTERRUPTION.

Dr. Morton, in his final report dated June 5, 1966, page 15, gives the following recommendations:

Recommendations for Termination of Project in 1966-67

The consultant and the Principal Investigator, together with the College Administration, discussed the appropriate steps to be taken to continue the experimental work ~~through~~ during the fall semester of 1966-67 at Culver-Stockton College. In addition to the plans already committed to paper in recent reports, the consultant wishes to recommend the following:

1. During the first six weeks of classes all classroom work be program based and employed to facilitate satisfactory arrival by all students enrolled to Frame 1221.

2. During the last ten weeks of classes students be assigned one set of Task IV for completion each week.

3. During the last ten weeks of classes a "grammar review" be conducted in classroom meetings through the use of a review text (commercially available) and selected reading materials.

4. That the MLA Spanish Proficiency Exam, Level LA, be administered as a final exam in the course.

5. That laboratory facilities similar to those provided during the present experiment be made available to program students through the following semester.

In our report dated June 30, 1967, sent together with Dr. Morton's report we informed as follows:

> If we analize the average time invested by each student in the realization of the frames, and if we apply the number of frames needed to terminate the Program, it would not be possible for us to make a statement regarding the termination of the Program in the first semester of the next academic year. But if we consider the minor difficulties of the last frames of Task III,

> and also the minor ones of Task IV, with the encouragement that this one will surely be for the students due to its constant and progressive introduction of the "meaning," maybe it will be possible, not to affirm, but logically to expect its possible termination.

As can be seen, the measures were adopted and reported, but we in our character of Principal Investigator, were very preoccupied about the success of them, with regard to the time that the students would have to invest to comply with them.

Our doubts were not only in regard to the time factor, to which we have already referred. But also, and primarily, to the effects that a long interruption of the Program could have on the students from a linguistic viewpoint. We do not consider it necessary to emphasize here that Dr. Morton shared our worries to this effect.

In the conclusions of our report of March 1966, we stated what follows:

> The eloquence of the cyphers contained in the three charts analyzed in this report, and especially of those in Chart #3, make us realize that this Program will not be able to terminate during the present academic year due to a material lack of available time for the same.
>
> We are in the way of a very interesting investigation and we should not detain ourselves. The course could continue during the summer and terminate by the end of next August. Of course, we would have to modify the contract, but the scientific results certainly would justify these alterations.

That is to say, from March on we were very worried about a possible break in the Program during the three vacation months. We felt that so long an interruption in a Program organized scientifically on the basis of automatism of human reactions would be going against its own instructing principles. However, faced with the negative force of reality, we felt compelled to plan, as the last resort to save it, its possible termination in the first semester of the following academic year.

The official refusal to modify the contract and, consequently, provide the necessary funds for finishing the Program during the summer, obliged us to submit it to that new test. This was not planned, of course, and was beyond the requirements of the contract in question.

We took, then, an emergency measure for the purpose of obtaining the results now foreseeable in view of the progress attained. We faced a negative fact, the interruption of the Program, and rather than give up before that discouraging reality, we decided to choose the lesser evil. That is, we would continue it and avoid, at all cost, its complete paralysis.

To make this decision feasible, we, ever enthusiastic with the scientific truth contained in the Program, offered our work and experience far beyond our obligations as professors at Culver-Stockton College. We formulated this offer officially in the conclusions of our report dated June 30, 1966.

Preoccupied by the aforementioned reasons, but still enthusiastic by our faith in the Program, we anxiously awaited the beginning of the 1966-67 academic term.

The college had assigned us only three hours per week to develop all the newly agreed measures. We, in accord with our promise to dedicate all necessary time to it, prepared a work program of 18 hours per week. This comprised the three hours assigned officially and fifteen more hours dedicated to the individual "Display Sessions."

We held our first regular class on September 4, 1966. At this time we gave our planned orientations to the students and explained what was expected of them in our final effort to finish the Program.

Only 14 students were present instead of the fifteen we were expecting. A new withdrawal had occurred, not because of the Program, but through the failure of that student to register for the new term.

In the second and third classes we explored the efficiency levels of the students' pronunciation and intonation. And, although we were expecting it, the great negative effect caused by the Program's interruption surprised us.

The deficiency in vowel pronunciation, especially the a, o, u; the consonants, especially the t, k, l, d (intervocalic) and the r; the absence or decrease of stress, and the failure, in many cases, of dividing sentences into phonic groups, confirmed our judgement about the great error that was made by not letting the Program follow its normal process. The different levels of previous efficiency had decreased between 20% to 50%.

We spent the second week of classes checking the students' reactions to the scientifically organized stimuli.

For that purpose we used a resume of all the structures taught in the Program. We had prepared this at the end of the previous semester with the object of facilitating the students' study for the final exam.

The result was truly depressing. We can say that, with some exceptions, automatism had decreased between 30 and 60%, and in special cases, had almost disappeared.

If the situation facing us was grave, even graver was one that had not yet manifested itself, but was now becoming evident to us.

We soon understood that the fight was against an impossibility; namely, the total loss of interest in the Program; but we prepared ourselves to wage the final battle in an effort to save it.

In order to finish the Program during the semester, the students needed to work in the laboratory an average of ten to fifteen hours weekly, according to the number of "frames" already finished. At the conclusion of the third week of the semester many students had still not been in the laboratory. A smaller group of the better students, had worked only one to two hours weekly. During the first three weeks we tried to convince them of their need to make one final, great effort, if they were to regain part of what had been lost so that they would finish the Program satisfactorily. Although we were aware of the uselessness of our warnings and advice, we avoided facing the reason that was causing this attitude. We still hoped for a possible change in the student's attitude.

But at the beginning of the fourth week, we decided to face reality and resolve a situation that was so uncertain and harmful to the students.

We spoke frankly to them and asked them to tell us their ideas and feelings with regard to the Program since their continued absence from the laboratory could be interpreted as a manifestation of rebellion against it. This situation couldn't be tolerated both for disciplinary reasons and for their own interests as students. We advised them, finally, to have no fear of telling us the truth. Since they knew us well, they knew that we would attempt to find the most favorable solution to their worries and interests.

Encouraged by our words, they decided to talk and all expressed their different ideas in regard to the Program. All of them gave the same solution for resolving the problem that was confronting them: a definitive termination of the Program and a radical change to a conventional course; in this course we would teach them grammar and pass to them as much knowledge as possible during the remainder of the semester.

Faced with this situation we asked each one to state his ideas in writing since we needed that documentation as a basis for proposing the solution they were asking for.

This was done, and with this documentation we had a meeting with Dr. Harris, Dean of the College and Vice President of Academic Affairs.

Dr. Harris understood and accepted the proposition of the students and authorized us to pursue the proceedings in the matter until final determination. At our suggestion, he also approved an interview with Dr. Morton, to inform him of the fate of the Program, and to get from him some orientation or suggestion to this regard.

It was not possible to obtain an interview with Dr. Morton because of the distance and because of our occupations in the college, but we did call him long distance and we had a conference over the telephone of more than one hour. He accepted our viewpoint and understood that the solution we were about to give the Program was, unfortunately, the only possible one in this very special case.

On September 5, we taught the first class of the so called conventional course, and under our own orientation, without any relation to the Program we finished the course, and we were done with that rough semester on January 25, 1967.

So far, we have explained the process of having the Program discontinued, but we have not yet said anything about the causes which motivated the students to ask for its termination.

From the letters of the students we can summarize the following causes present in all the papers:

1. A greater difficulty in their studies of the second year, and the impossibility, consequently, to dedicate to the Program the number of hours required for its termination.

2. The conviction, based on personal experience, of the impossibility to finish in one semester the same number of frames done before in two semesters.

3. A feeling of frustration when realizing that they had, in three vacation months, lost a great part of the experience acquired in one year of intense work and effort.

4. A feeling of frustration when convinced that it was not possible to continue the Program taking the last frame as the starting point, because the loss or diminution suffered in the automatism impeded adequate reactions to new stimuli.

5. Their explicit decision of not working again with the frames already studied.

6. A feeling of frustration when comparing their acquired knowledge after a year of work, with the knowledge acquired by other students, in the same period of time, using other methods of teaching, all of which, together with their actual deficiencies in pronunciation and intonation --on the principal objects of the Program -- put them in a place of complete inferiority.

These were the causes that determined the definite interruption of the Program, but there is still another cause, not mentioned in the letters of the students, which was of great influence in this process and that should be taken into consideration to better understand the final attitude of almost the majority of the students.

I refer to the character of <u>requirement</u> which the study of a foreign language has, in this case, Spanish, and the influence that this has had in the development of this Program.

With very few exceptions, the students enrolled in the college have no interest in learning a language, but since there is a requirement of 12 academic hours, they feel obliged to enroll in one of the courses in foreign languages offered at the college. The interests of the students, the family influence, and the advice of another student with experience in this field, are the possible factors taken into consideration in choosing a language; but, as a general rule, the belief that a language

is easier is the cause determining the selection. The true interest of students in a language is only that of credit hours. A language represents an obstacle in their goal, that is academic credits. They go to class and study because they are obliged to do it, but they lack the enthusiasm and interest needed to make progress.

And that negative factor should be analyzed in the experimental Program. In the 1965-66 academic term, the two conventional and elementary Spanish courses were substituted for the experimental Program. The students, who for one reason or the other, had decided to study Spanish, were compelled to take the experimental course since there was not a possible choice.

This is how the experiment started. There were 32 students, who with very few exceptions, were anxious only to get the 9 credit hours the Program offered.

The general lack of interest was transformed into enthusiasm by the excellent explanation of Dr. Morton about the Program.

It was explained to the students that if they kept the rules, the Program would be finished in a year, and they would find themselves speaking Spanish with the fluency and pronunciation of a native of six or seven years of age.

With this stimuli, the students began their work full of enthusiasm, not manifesting that lack of interest peculiar of the students of a language.

We, as it was our duty, tried to keep and increase that enthusiasm. This was successfully done for a certain period of time. After the first three months, the interest steadily decreased, and by the end of the semester the lack of interest truly began to worry us.

We are not going to analyze here the causes of this negative psychological process since in our previous reports we have explained the different causes, such as: excessive hours of work in the laboratory and the effect that this was having in other subjects; the disappointment of comparing the work done with the work that was still to be done, and the time available to finish the course; the feeling of frustration that came from the belief that they were not truly making progress in the study of the language because they lacked even a small vocabulary; the uneasiness produced when the students compared reality with the goals established by the Program; the extreme difficulty of many of the frames made the students devote many hours of work with a result that was inferior to the average required by the Program for its termination in one year, and many other causes.

The truth is that during the second semester we had to employ all the psychological tips at hand to maintain some interest, because by this time the students were convinced, on their own experience and the calculations they made, that it was impossible to finish the Program within the year.

These circumstances were the cause for taking special measures during the last few weeks of the second semester (meaning frames, extra classes to teach the spelling symbols so to substitute the phonetic symbols, reading, etc.) which were reported by us on June 30, 1967.

The students learned with these special measures, but they lost faith in the Program. The initial motivation had disappeared.

When they came back from vacation --three long months completely away from the Program --they were not the same students who once were part of that extraordinary class, full of enthusiasm, when the Program began. The students were, on their return from vacation, the classical group

of students, lacking interest in the study of a foreign language. Of course, there were a few exceptions, which always confirm the general rule. In addition, these students had the feeling of frustration because of their negative experience after a year of work.

The students had already earned the nine credit hours for the two semesters and they only needed three more credits to pass the requirement. They were not really interested in learning Spanish, they only wanted to earn the credits, and of course, they were not willing to work for 15 hours a week to do what others did with less effort.

The long parenthesis of the vacation months was very harmful to the Program and certainly precipitated its definite cancellation, but anyway, in our opinion, the students were not psychologically apt to continue it.

CHAPTER II

SUMMARY OF THE STUDENTS' WITHDRAWALS FROM THE PROGRAM SINCE THE BEGINNING UNTIL THE CESATION AND CAUSES

In our report of March 1966, we informed of those leaving the Program and the causes for their doing so. We will in this report summarize the information given then, and will in addition, report what happened in the following months.

The Program started with 35 students.

During the first semester (from September 9, 1965 to January 27, 1966) three students withdrew.

L.J. The cause was not the Program (Auditor, with 16 credit hours. He soon realized his impossibility to keep the rules of the Program.)

D.L. The cause was not the Program (A change in plans put him in the necessity of studying Greek).

B.W. The cause was not the Program (Automobile accident, lost an eye).

At the end of the first semester, four students were graded "F" and consequently were withdrawn from the Program.

G.J. The cause has to do with the Program, but cannot be attributed to it. (The rules were not kept for psychological reasons, due to the physical deficiencies of the student).

P.J. The cause is related to the Program but cannot be attributed to it. (Failure to keep the rules of the Program, due to a lack of interest in the language and too much time devoted to social and athletic activities).

B.C. The cause is related to the Program but cannot be attributed to it. (Failure to keep the rules, due to his anarchic personality incapable to adjust to any rules).

S.R. The cause is related to the Program but cannot be attributed to it. (Failure to keep the rules, due to lack of constancy in the work done).

We had hoped to start the second semester with 28 students, but of these, two left the college and three decided to withdraw from the program.

These students were:

C.B. The cause was not the Program (Left the college because of family economical problems.)

G.S. The cause was not the Program (Left the College because of family economical problems.)

K.M. The cause is related to the Program and possibly imputable to it. (Impossibility of devoting to the Program the required time because the grades for the semester in other subjects were lower due to the time spent in the laboratory.)

R.C. The cause is related to the Program and could possibly be attributed to it. (Low grades during the first semester required more time to be devoted to other subjects.)

P.M. The cause is related to the Program and could possibly be attributed to it. (By reason of time and low grades, as in the two cases mentioned above.)

The second semester began with 23 students.

From the beginning until the report of March 1966, the following students left the Program:

H.R. The cause was not the Program. (This withdrawal was due to academic reasons.)

C.Ch. The cause was not the Program (A change of plans for his studies did not require a foreign language.)

L.D. The cause is related to the Program and could possibly be attributed to it. (The only case registered of a student leaving the Program because he did not like it. The student emphatically criticized the Program.)

B.K. The cause is related to the Program and could possibly be attributed to it. (Impossibility of devoting to the Program the required time; the student needed to raise the low grades in other subjects.)

W.T. The cause is related to the Program and could possibly be attributed to it. (Impossibility of devoting to the Program the required time; the student needed to raise the low grades in other subjects.)

The second semester continued with 18 students, but one of them was withdrawn:

D.D. The cause is related to the Program and possibly imputable to it. (The student did not come for final exam and had almost dropped the course. He decided to drop the course because he needed more time to study other subjects.)

The second semester ended with 17 students.

Of these 17 students two more left the Program.

G.M. The cause was not the Program (Transferred to another college.)

M.A. The cause was not the Program (Graduated in the first summer session.)

Of the 15 students still in the Program, there was one more withdrawal:

W.R. The cause was not the Program (The student did not continue in the college.)

S U M M A R Y

Cause not related to the Program	10	28.57%
Cause related to the Program not imputable to it	4	11.42%
Cause related to the Program possibly imputable to it	7	20.00%
Total number of withdrawals	21	60.00%
Possibly caused by the Program	7	20.00%

CHAPTER III

GENERAL EVALUATION OF THE DIFFERENT LEVELS OF EFFICIENCY IN VOCALIZATION OF THE STUDENTS IN THE EXPERIMENTAL PROGRAM

In our first report, November 1965, we made a partial and temporary evaluation of the various levels of efficiency in vocalization of 12 students.

In the second report, March 1966, we ratified and corrected the first evaluation, and evaluated six other students, completing the evaluation of all the students (18) working at that time in the program.

In this general evaluation we will include the students who, for one reason or another, left the program prior to March 1966, but whose levels of efficiency in vocalization we could provisionally evaluate at that time because of the many frames finished.

As we explained in the aforementioned reports, the elements considered in this evaluation were "the pronunciation and the fluency in the vocalization of the most complicated and difficult utterances."

We then classified the levels of efficiency in the following manner:

First: Evaluation of the pronunciation and the fluency in the vocalization of the most complicated and difficult utterances: Native

Second: Almost a native.

Third: Not much like a native.

Fourth: Far from a native.

We are evaluating here a total of 28 students, two of whom could not be properly evaluated, starting from those who completed the two semesters and remained in the Program until it was discontinued; then those students who worked during two semesters, but who did not register for the third semester; and finally the students who worked in the program less than two semesters.

STUDENT	EVALUATION	PERIOD OF TIME WORKED
E.A.	Native	Two semesters until the discontinuance.
D.S.	"	" " " "
L.D.	"	" " " "
S.R.	"	" " " "
P.R.	Almost native	" " " "
H.E.	" "	" " " "
S.L.	" "	" " " "
M.R.	" "	" " " "
G.G.	" "	" " " "
D.T.	" "	" " " "
Mc.W.	Not much like a Native	" " " "
B.E.	" "	" " " "
I.W.	" "	" " " "
M.H.	" "	" " " "
G.M.	Native	Two semesters
W.R.	Almost native	" "
D.D.	" "	" "
M.A.	Not much like a Native	" "
W.T.	Native	One semester and two months
C.B.	"	One semester
P.M.	Almost native	" "
H.R.	" "	" "
L.D.	" "	" "
B.K.	" "	" "
C.Ch.	Not much like a Native	" "

STUDENT	EVALUATION	PERIOD OF TIME WORKED
K.M.	Far from a native	One semester
G.S.	Not evaluated - was only up to Frame 373	
R.C.	Not evaluated - was only up to Frame 382	

If we analyze this relation of students, and grouped the students who worked for at least two semesters, we would have the total number of students definitely evaluated.

Summarizing the levels of efficiency of these 18 students we obtain the following results:

NUMBER OF STUDENTS	EVALUATION	PERCENT
5	Native	27.77%
8	Almost Native	44.44%
5	Not much like a native	27.77%

If we were to consider the eight students who were evaluated, but not definitely, the general result would be:

NUMBER OF STUDENTS	EVALUATION	PERCENT
7	Native	26.92%
12	Almost Native	46.14%
6	Not much like a Native	23.07%
1	Far from a Native	3.84%

It should be pointed out that these temporary evaluations were made on the sound of the letter a, a very difficult sound for the English speaking students, and combinations of a with the most difficult consonants: t, k, l, and others. We can therefore assure that the temporary evaluation has more than 85% probabilities of turning out to be definite.

It would not, therefore, be anti-scientific, to consider the percents of the general result given above, as the general result of the efficiency levels obtained by the students in the experimental program until its interruption.

This result is very satisfactory if we keep in mind that this program was not carried out in full, but on the contrary, was discontinued in the middle of its development. Nonetheless, 73.06% of the students reached a level of efficiency in vocalization very hard to attain with other methods of teaching.

We have put together in one percent the evaluations "native" and "almost native" for the reasons contained in the process of the evaluation that we will here explain.

The evaluation as native means that the student does not employ English sounds in his vocalization, this means that there is no manifestation of the phonemes of his native language when speaking Spanish. This does not mean, however, that the pronunciation of all Spanish sounds is correct; some of the sounds, for example: j and r, are completely alien to the English phonetics, and although not to pronounce them correctly affects the concept of good pronunciation, it does not lose its characteristics of native.

This evaluation as native does not mean that the student has complete mastery of the stress, nor that the intonation and fluency of expression could not be bettered. The evaluation as native means that the aforementioned factors are acceptable in view of a flexible model which, according to our judgement, we should keep in mind to evaluate correctly.

That flexible model moves between the objective and the scientific in a linguistic analysis, and the subjective and emotional in the person making the evaluation.

The analysis, first of all, tries to determine whether the student is capable or incapable of producing the Spanish sounds correctly through the vocalization of expressions of no more than three or four syllables.

It precisely tells, for example, if the stops t & k are produced with or without aspiration; if the l is dental or alveolar; whether the a is short, tense, open and if it does not lose clearness with the influence of other sounds; if the intervocal d is fricative, and if the tendency to substitute the d for an r has been eliminated; it tells whether the o is or is not close and shorter than the a; and in this way, through the study of each sound and its combinations in short expressions, we arrive at the first conclusion: what is the level of efficiency and how capable is the student of vocalizing Spanish sounds.

It could very well happen that the student pronounces all the sounds correctly, and in this case we classify him as "native," but with a temporary character and subject to the result of the vocalization test of longer and more difficult utterances.

Sometimes in this second test, a distortion of the sounds correctly pronounced in the first test is produced, and the stress lessens and the total expression loses its vigor and force. In these circumstances the evaluation must be changed to "almost native," and labeled definite from the viewpoint of the vocalization contained in Task II (until Frame 700).

But since the student can truly pronounce all sounds, and his deficiency occurs only when trying to reproduce a greater number of sounds, this inability will most probably disappear before the program is terminated, if we take into consideration that this evaluation is made at the end of Frame 700, less than half way through the course.

The case could also be that the student in the first test does not pronounce the sounds foreign to English Phonetics correctly. This, however, does not prevent us from evaluating him as "native." If in the second test only this deficiency is found, the evaluation previously made becomes definite.

If a student has no difficulties in longer expressions, and if his deficiencies are in the use of no more than three English phonemes (t, k, and the vowels a or o), together with an incorrect pronunciation of sounds foreign to English phonetics, he is rated as "almost a native," provided his stress is acceptable.

In the case of a student using in his Spanish vocalization, four or five English phonemes (t, k, l and the vowels a and o), together with the incorrect pronunciation of the sounds alien to English phonetics, the evaluation will be "not much like a native," provided the stress is acceptable. If the stress is not acceptable, the evaluation will be: "far from a native." It must be understood that all these assumptions in making the evaluations, must be flexible and adjustable to the special circumstances in each case, but they can serve to help comprehend the technical and objective bases of our evaluation - - this means, polarities between which the flexible model moves.

The other polarity, the subjective and emotional, is the one we will now analyze.

Phonemes put together in expressions somewhat long and confronted with a series of technical presuppositions, do not truly represent a comparative judgement between the different levels of efficiency of the students and the talk of a native, to which we have so often referred in this chapter.

From the viewpoint of linguistics there is a reality: the levels of efficiency confirmed by the vocalization of sounds; but from the standpoint of the native, we are in the presence of a fiction. We could give the impression of having given to our native model all the perfections, and that according to this perfect type we have made our evaluation.

We have not done this, because if it had been done, it would have proved that the linguistic reality of a native is completely unknown to us. After facing the student with the technical archetype, we have confronted him with a native with his many imperfections in vocalization, but with a very peculiar melody in his lips.

Spanish is like a song containing the many melodies of the various countries where it is spoken today.

Each melody represents in itself the core of the song, and this song is formed by the union of all the melodies.

The different parts represent, in this case, the whole; and the whole is the total sum of all the parts.

To speak Spanish like a native means to speak the language the way it is spoken in Spain or in any other Spanish speaking country.

Of course, the native used by us as the type, is the native of our own country. He is the one with the melody that we truly know, and that forms part of our own existence. It is not the way it is spoken by us, but the way we have heard it spoken from the time of our birth. We are not referring here to a native of a particular social or intellectual class, nor to the one just with an elementary education who could be considered the average type, and thus representative of the majority. No, there is no classification nor selection of a particular native to take him as our type in the evaluation.

The point is not to mentally reconstruct a model and compare the skill he shows in the production of the sounds with the student; nor to concentrate our attention in judging whether or not the phoneme was produced with or without aspiration. No, there is nothing material nor objective. It is simply a subjective problem, one of interior sensibility.

In order to see and comprehend the symbolism in a famous painting, one must remain at a distance from it; if not, only a series of colors lacking expression would be seen. The same thing holds true in listening to a melody produced by a student of the Spanish language, we should remain somewhat separated from the phonemes as constitutive elements, in order to better hear the melody.

At a distance, and better still, with the eyes closed, we get ready to listen to the student.

There is within us a melody of the soul of our country; a melody that is part of our nationality, history and traditions; a melody enriched with our laughter and tears, with our joys and sorrows; a melody formed by the beautiful and soft sounds of our fields, and by the sharp chords of our Hispanic blood; a melody evoking our childhood and the valuable treasure of our remembrances; a melody that is an echo of our own words, and a melody which comes back to us with a message of love and understanding. A melody that is an invisible bridge uniting our souls in the common destiny marked by the Creator; a melody that has within itself the comforting warmth and the gentle breeze of the mild climate of our Country; a melody that is incense at prayer, gentleness when we speak of love, and a sharp sword at imprecation. And this melody, nutrition for our souls and core of our lives, is the one in our interior, and the one serving as a guide in the evaluation of the student in question.

And now we will listen to it, just that, simply listen to it. We do not think or analyze. Our position is passive, purely receptive.

And the words, as musical notes in an imaginary pentagram, start to sensibilize our hearing, and begins to penetrate our interior.

If there is no dissonance, and if a feeling of peace invades us, we can then assure that the melody of the student has the same essence and adornment as our interior melody.

It cannot be denied that in any other case, there would be the clash of different notes, and some or all will not be able to adjust themselves, producing a dissonance that impedes the harmony of the two melodies, giving us a starting point to a gradual evaluation, according to the number of dissonant notes.

As can be seen, this evaluation is subjective and of extreme sensibility. The interior melody, as we have already explained, is not only music, it also encloses a message of the life of the evaluator, and this is why if the speech of the student, with its inharmonic notes, does not evoke or makes us get the message, in a purely emotional reaction the student is rejected from the classification as "native," and is put, depending on the number of differences and essence, at a distance from the native model.

Up to this point we have explained our two different viewpoints in making an evaluation. The first is scientific and objective, the second is subjective and emotional. We could say that the second has the function of a fine sieve for the technical, which will give us, or fail to give us, the pure product of a native.

The process of evaluation, as can be seen, is very flexible, and its results can always be improved through the effort and work of the student.

This is why, since the evaluations were made when the program was still in progress, all of them are subject to question as to the final and probable levels of efficiency if the program had been brought to a conclusgion.

On page 21 of this chapter, we gave figures and percents for the general result of the levels of efficiency until the interruption of the program, and to do this, we included 8 students provisionally evaluated, basing this temporary evaluation in the fact that there is a probability of 85% for the evaluation to become definite.

It should be made clear, however, that this evaluation is given a definite character, only and exclusively, up to the conclusion of the vocalization drills in Task II (as far as frame 700), but not thinking of the conclusion of the program. Otherwise, it would be to deny the scientific and pedagogic structure of the program, and to conclude with an absurd affirmation about the impossibility for progress in vocalization after Frame 700.

We consider it convenient, although we have already explained this point in the process of evaluation, to point out in detail the reasons why we have put together and united in one figure the percents of "native" and "almost native," and we derived a conclusion about the high level of vocalization attained.

Remember that the perfection of the student evaluated as "native" is relative, and that the imperfections of the students in the classification of "almost native" can be overcome. The student in this last classification is much like a native, but not enough to be considered one.

He has the majority of the "essences," but lacks the "adornments" necessary for his expression. There is a common zone among the students evaluated, only a small number of phonemes and the same number, or more, "adornments" separates them.

We consider that the evaluations in this Experimental Program, made when it was halfway in its development, would have been modified and raised to the next higher classification, if the Program had been brought to an end.

We consider that the change from "almost a native" to "native" is the easier one, and the probabilities, it is our belief, are of more than 80%.

The change from "far from a native" to "not much like a native" is the hardest to make since the classification as "far from a native" almost always is due to articulatory problems, or other physical handicaps of the student. We estimate these probabilities at 40%, maybe less because the deficiencies are so many that the pedagogical technique of the program hereafter will not contribute much to enable the student to overcome them.

And now, applying the probability percent to the change from one classification to another in the evaluation, arrived at through observation and analysis, we will rationally infer the possible efficiency result in the vocalization within the experimental program, supposing the Program had been brought to an end.

Let us again see the general result as stated on page 25 of this chapter. As can be observed, the students evaluated as "almost a native" represent 46.14% of the total number of students. If we apply the 80% probability of change to 46.14%, we get 36.91%, representative

of the students who would be evaluated as "native" later on in the program; this figure added to 26.96% representing the students evaluated as "native" from the beginning, gives us a result of 63.83%. This signifies that the Program would have concluded with 63.83% of the students in the category of "native."

Subtracting 36.91% from 46.14%, the evaluation as "almost a native" would be 9.22%.

The students in the category of "not much like a native" represent 23.07% of the total number.

If we apply the 60% probability of change to 23.07%, we get 13.84%, representative of the number of students who would have been evaluated as "almost like a native" later on in the program. If to this figure we add the 9.22% originally in the category of "almost a native," we get a total of 23.06%. This signifies that the total number of students evaluated as "almost a native" would be 23.06%.

When we subtract 13.84% from 23.07%, the number of those evaluated as "not much like a native" would be reduced to 9.23%.

The students evaluated as "far from a native" would represent 3.84% of the total number.

When applying the 40% probability to 3.84%, we obtain a result of 1.54% which represents the number of students that would have been elevated to the category of "not much like a native" later on in the program. If we would add 9.23%, which represents the students evaluated from the beginning as "not much like a native," we obtain a result of 10.77%. This means that the number of students evaluated as "not much like a native" would have been 10.77% of the total number of students.

The evaluation as "far from a native" would have been reduced to 2.31% of the total number of students.

SUMMARY OF THE RESULT IN VOCALIZATION IF THE PROGRAM HAD BEEN CONCLUDED

EVALUATION	PERCENT
Native	63.83%
Almost Native	23.06%
Not much like a Native	10.77%
Far from a Native	2.31%

These results have been arrived at after a year of work, and they have been studied in the light of linguistic principles. They present a result that should be given careful consideration since we believe that such a result cannot be surpassed by any other method of teaching. But this possible result, we consider, is somewhat conservative because the program could attain, eliminating the difficulties that we encountered, and substituting completely the equipment used, a higher level of efficiency.

And before closing this chapter, we will comment, by way of explanation, some of the images and expressions employed when we explained the meaning that our native language has for us, and the way in which it works in the process of evaluation.

The profound human significance of every language, made us walk through somewhat formally literal paths, but these paths were never in their core anti-scientific.

When we speak of "essences" and "adornments," we refer to two fundamental linguistic concepts.

The "essences" are the "phonemes," and the "adornments" the "allophones."

The "phoneme" is not a sound, but a type of sounds, and when you master this "range of sounds," the pronunciation acquires the accent peculiar to a native.

That is why when the speech of the student harmonizes the "essences" and "adornments" of our interior melody, which is the melody of a native of our country, then we consider such a student a native.

We realize that the terms "songs," "melodies," "Essences" and "adornments," are not the most appropriate when making a supposedly scientific report, but there are times, if we wish not only to express our fundamental ideals, but also "adorn" them in detail, when we must make use of figurative speech, which like melting wax you can mold and shape into the most difficult figures.

That is what we did, and if there is sin in so doing, we believe that sin is no more than "venial."

CHAPTER IV

EVALUATION OF OTHER RESULTS

The scientific structure and the pedagogic technique of the experimental program resulted in the following:

A. A knowledge of the Spanish sounds and their discrimination from non-Spanish sounds.

Task I (Phonematization) gave the students a high level of efficiency in this respect.

The writing, through phonetic symbols, of the sounds heard is the first result obtained in terms of time in this program; it is also the first proof of its scientific efficiency.

After finishing Frame 332, the majority of the students were perfectly capacitated to know and distinguish the Spanish sounds, and it was truly impressive to see the students express these Spanish sounds in writing; even the most difficult Spanish sounds dictated were taken down properly.

This skill in discriminating sounds, prepared them to learn how to produce the sounds they already knew and distinguished perfectly.

Its influence in the process of vocalization is evident, and in this sense is part, to a certain extent, of the result attained in the vocalization and which we studied in the last chapter.

When the vocalization was finished and Task III was started (Acoustic Signifiers), the importance of this skill to differentiate became more evident because of the instantaneous and automatic reactions to the stimuli of different sounds.

Later, when the introduction to the meaning started, we came to value still more the importance of the incipient process of oral comprehension. But since the program was definitely interrupted when half-way in its development (Frame 100), it is not possible for us to make, as we did in vocalization, estimates of the possible results; here we must adhere to what we directly experienced.

This is so because Task IV (Structural Patterns) is composed of the basic exercises of oral comprehension without which it is not possible to judge with the sufficient informative base.

Analyzing thus the results obtained, we can affirm that 70% of the students attained a perfection of 80% to 100% in the knowledge and distinction of the Spanish sounds; and that the other 30% reached only a 60% to 70% perfection.

B. Automatism of the vocal reactions to the stimuli of the Spanish sounds.

In our report of March 30, 1966, when we evaluated the levels of efficiency of the students in vocalization, we yield in each case our favorable impression about the way in which the students were automatically reacting to the stimuli presented.

After that date, the students worked only two more months, and none of them finished Task II, leaving unfinished an average of 300 Frames.

Although our information is limited, we can assure that the automatism of the reactions reached levels of efficiency that are certainly impressive. It was truly an experience to see how the students, not knowing the meaning of any of the words

they were employing, answered with such rapidity and so naturally to questions that required for an answer a hard grammatical construction because of the need to change the tense of the verb and the personal pronoun, that one even thought they perfectly knew what they were saying. To give a more precise idea, and a more objective criteria, we would say that 70% of the students attained an 80% to 100% perfection in automatic reactions; and the other 30% between 60% to 70%.

C. Reading

The majority of the students acquired an ability to read with some fluency and quite naturally; they read with sufficient stress and with the proper intonation. We had direct intervention in this through the special measures taken in the last few weeks of the second semester of the 1965-66 academic year; but we must say the Program had provided the foundations that allowed the success of the aforementioned measures. It is our opinion that 70% of the students had a 75% to 95% perfection in reading; the other 30% read with a 60% to 74% perfection.

D. Writing

In our report of June 30, 1967, when we analyzed the results of the final exam of the 1965-66 academic year, we expressed our opinion, very favorable indeed, regarding the surprising result obtained in this last objective of the program. At that time we affirmed, and now we repeat, that such a result constitutes an unequivocal proof of the sound scientific principles of the program. We must make it clear that this writing is evaluated principally for the reproduction of the

sounds through the spelling symbols, in substitution of the phonetic symbols previously employed by the students, and not for its grammatical perfection.

The students were not exercised in grammatical perfection. Among the 100 Frames introduced in the program in the last few weeks of the second semester of the academic year 1965-66, there is only one, #779-K, which has an exercise directed toward an initiation of the students in spelling. After working this frame, we exercised them only for three days through dictation.

This is what they were taught in writing, but since the result is also good from a grammatical standpoint, we must agree that we are in the presence of a result that is not proportionate, and that is indeed very superior to what was taught. This makes us realize that the program has many good principles, and also the great influence that the previous ability to hear and speak correctly has in writing. For obvious reasons, we are not evaluating this result. We only wanted to leave evidence of it here.

CHAPTER V

DISPLAY SESSIONS

We here refer to our considerations on the Display Sessions contained in our first report of November 1965 (pages 14-17), in relation to those in our second report of March 1966 (Third Chapter), and both related to our criteria of the Display Sessions and the time factor, in the chapter entitled Analysis of Charts #1 and #2 (Pages 13-15) also in the March report.

Since in those reports the technique used to structure, organize and give life to the development of the Display Sessions, together with our own ideas about their positive and negative aspects from the viewpoint of the program were explained in detail, we are going to confine this chapter to some considerations and suggestions for possible modifications, as a previous step to our definite conclusions on the same.

We believe that the Display Sessions, for the linguistic and human reasons explained in our previous reports, can contribute to the achievement of basic objectives in the program, but the question to be answered is if such a contribution has sufficient importance to justify and accept as a need of the program the delay in causes.

We, based on the realities that we had to face, and directly guided by the most elemental of linguistic principles, structured and organized the Display Sessions to apply them, as we did, individually, with the purpose of offering the program the greatest possible contribution that could come through them.

But our system can be accepted only theoretically. From the point of view of human and academic realities, it is impossible to put in practice. We could develop it because we worked far from both realities,

investing hundreds of hours of work beyond our academic obligations and of our duties as Principal Investigator, but it would be absurd to pretend that others would do the same. Neither would we do it again.

If our system is not feasible, the solution would be, of course, to modify it in the sense of reducing the time invested in the Display Sessions. This could be tried, organizing the Display Sessions collectively, provided there are no more than 10 students present in each class, and each Display Session covering the work done by the students in approximately five days.

The rigidity in adjusting the Display Sessions to a determined sequence of sounds must be left aside, and the number of sequences forming a bigger linguistic unit brought together.

Dividing the 50 minutes of class into 10 students, we would have five minutes for each. By means of previously and carefully selected stimuli, containing all of the difficulties of the previous sequence, the level of efficiency reached by the students until the frame assigned as work to be checked in the Display Session in question, could be verified. Naturally, we would not have the time to insist and try to correct, for example, the incorrect pronunciation of a certain phoneme, nor the time to check the reactions through in all of the frames of a sequence, but we could obtain, at least, a general idea of the progress of the students and an opportunity to show them their own deficiencies.

After the first week of work, and after verifying the average number of frames finished by the students, the D.S. would start in the second week, each day announcing a D.S. that would cover a certain number of frames. The students would be required to attend the collective classes and must assume the responsibility of checking as

soon as possible the linguistic units finished.

In three daily hours of class five days a week, the work done by 60 students, in the previous week, could be checked. This is, of course, keeping in mind the fact that the progress of the students is not the same because the time they invest in the subject, and their rhythm of work are different in each case.

One could think that with two days, and a total of six hours of class, there would be sufficient time to examine 60 students; but from the practical standpoint, this would not be so because there would be cases of students very slow in their work, who must be given the opportunity of a D.S. almost at the end of the week; and other cases would require a special treatment because of specific deficiencies. All of the above makes us think that 15 hours per week are needed in order to have sufficient time to solve all difficulties.

In the system that we are only sketching, the majority of the students would have more frames finished than revised in the D.S. This would be impossible to avoid unless they were asked to stop their work until it could be checked. This solution is unacceptable for obvious reasons.

With this system, the problem of how to solve the case of students with proven deficiencies would certainly come up.

Since these D.S. would include the revision of the work of several sequences of a larger linguistic unit, we could not ask the students, in order to correct the deficiencies, to do again the frames already finished because this would mean, in some cases, to go back and do again the work of maybe a whole week. Linguistically, it would be negative to let the student go ahead without solving the difficulties and correcting the mistakes. Maybe an emergency measure could be taken by means of the work of a reduced number of frames, and complete the work with the

help that could be given in a special D.S. This would be a problem to be thought over if these ideas were to be given consideration in order to put them in practice.

As can be seen, with this system, while it is true that the investment of time would be reduced to 50 minutes per week for the students, thus reducing the delay caused by the D.S., it is also true that their linguistic contribution to the Program would be lessened. The personal contribution given through the understanding between teacher and students, and the offering of new motivations for their interest, would be very limited to the superficial contact of a collective weekly session.

Now, would the linguistic and personal contribution of these new D.S., have the sufficient importance as to accept as a need of the program the delay of one hour per week? It is not an easy question to answer. There are many factors that should be taken into consideration.

If we think of the structure of the program as we know it, our answer would be affirmative, because it needs both factors, the linguistic and still more the personal. If we think of the program in the future, in accord with the new ideas and modifications of Dr. Morton, we would be inclined to give a negative answer since once the pedagogical technique is bettered, and the motivations increase, the D.S. would have less importance as elements assisting and helping in the new program.

Our negative response with a conditional character indicated our stand favorable to the D.S. because of their great linguistic and personal contributions, but it is also indicating our strictly objective and scientific position, which searches for a truth that could open new and unforeseen horizons in this field of education.

CHAPTER VI

TIME AND WORK IN THE EXPERIMENTAL PROGRAM

The work of the students in relation to time, due to the great importance of this relationship for the program, has been explained in detail in our three previous reports and five charts.

We thus submit to our first report, November 30, 1965 (pp.4-13); to our second report of March 1966, Chapters on the Analysis of Charts #1 and #2, (pp.1-15) and Analysis of Chart #3 (pp. 1-5); and also to our third report of June 1966, the chapter on the Analysis of Charts #1 and #2 (pp.26-29).

In this chapter we will, based on the information given in the aforementioned reports, give after certain considerations of a general character our definite conclusions to this respect.

In the general prescriptions of the Program, a difference is established between the time the student is really learning, which means when he is responding to the audio part of the Program (response time) and the time he is working on a series of assignments and duties not considered as an active part of learning, for example, reading the instructions, checking the finished Frames, the attention that must be given to the tape recorder, and any oral practice authorized by the instructor, etc., which is denominated "Working Time."

And over this difference, which we could label "active" and "passive" learning, the time that must be invested in order to finish the program is estimated.

It is estimated that many of the students need only an average of 250 hours of Response Time to finish the program with exceptional speed. But the majority of the students need 315 hours to finish at a slower speed.

Four hundred hours is given as the maximum investment of time, but this is not very probable.

It is also estimated that the time invested in assignments which falls into the category of Working Time, represents a third of the total time invested in active learning (Response Time.)

If we take into consideration only the average representing the work of the majority of the students, we would have to add to the 315 hours of Response Time, 105 hours of Working Time, which gives us a total of 420 hours necessary to finish the program.

The analysis of the average of 420 hours in relation to the results of the program that we will show next, would constitute the basis that would allow, with the analysis of several other factors, to make our own conclusions.

We take the following information from Chart #2 of our report of June 1966:

STUDENT	TOTAL TIME WORKED 1965-1966 HOURS	MINUTES	NUMBER OF FRAMES FINISHED	AVERAGE MINUTES PER FRAME
P.R.	210	23	1100	11.47
W.R.	314	46	993	19.01
D.D.	124	45	640	11.69
G.G.	186	35	829	13.50
H.E.	224	55	1004	13.44
H.M.	269	35	882	18.33
M.A.	294	37	968	18.26
Sh.M.	340	18	1034	19.74
S.D.	359	25	1248	17.27
B.E.	347	30	922	22.61
G.M.	300	27	1048	17.20
E.A.	422	20	1100	23.03
E.W.	306	45	980	18.78
L.D.	230	54	716	19.34
McW.	228	55	973	14.11
M.R.	239	00	1000	14.34
S.R.	258	25	1037	14.85
D.T.	168	10	863	11.69

As can be seen in the outline, the average of minutes per frame varies from a minmum of 11.47 to a maximum of 23.03.

If we add all these averages, and their result is divided by the 18 students, we would get a general average of 16.59 minutes per frame.

If this figure is multiplied by the 1949 frames that constitute the program we get 538 hours.

These 538 hours would represent the necessary time to finish the program and demonstrate that there was a big error in the estimates given in the general prescriptions for the program.

The cause of this error seems to be in that the necessary time for the conclusion of the program was estimated on the basis of circumstances very different from those we had to work with.

The delay that the D.S. would produce, with their character of additional experiment, was not taken into account.

The equipment that would be used was not thought of.

Regarding the D.S. we have already explained the delay caused by them and need not make any other comment on the matter.

Regarding the equipment used in Culver-Stockton College and the delay this caused, we will here state what we said in our report of March, 1966, in the Chapter on the Analysis of Charts #1 & #2 (p.15):

> D. The tape recorders employed in the program.
> We have worked with the Machine Controlled Response Time which is to say with the conventional machine, somewhat outdated, which has been the cause of a loss of time by the students in the changing of the tapes, and certain other inconveniences of the mechanisms. The appropriate machine for a more rapid and efficient development of this program, is the machine which operates under the mechanism of Responser Mode. That wonderful piece of equipment would contribute to decrease the time invested in the realization of the Frames.

There are still other factors which delay the program and which play a part in the result of 538 hours that must be invested to conclude the program. These causes have been explained in the reports referred to at the beginning of this chapter.

We will recall here only those factors which are related to the indisposition or mistakes made by the students when making their notations in the charts, because we cannot blame the structure nor the organization of the program for these.

Regarding this matter we said the following in our report of November 1965, page 9:

> Another possible cause would be the false notations in the charts; this means that they wrote down a number of hours not really worked. We have found in this certain deviations that, of course, preoccupy us.

Concerning this same cause, we stated in our report of March 1966, in the chapter on the Analysis of Charts #1 & #2, the following:

> The change in our system, expressed in our "Additional Report".. of November of last year, was not to require a minimum amount of hours of work, but only a minimum number of Frames to be finished. This change caused by our fear that the Charts did not reflect the truth as to the number of hours employed, could be seen as an element to be considered regarding the possibilities of a decrease in the total number of hours worked.

That is to say, that during the first three months, the false increase in the number of hours worked was a reality, and that the measures taken, although they in part decreased this deviation, did not eliminate it completely; this fact, together with the probability of mistakes in the notations, gives us a cause for the delay to be considered in our analysis of the program and the time.

There is still another cause not mentioned in previous reports, and if we wish to be truly objective and professionally honest, we must analyze it in relation to the time factor.

The classification of this Program as "experimental" was a source of preoccupation and worry for us since the beginning, because trying to submit to a test the effectiveness of a system scientifically organized, one would presuppose that the person in charge of the investigations would have had, on top of his linguistic knowledge, sufficient experience in the mechanism of the program.

We had, to a certain extent, the linguistic knowledge, but completely lacked experience, since our previous experience in teaching Spanish was not in the application of a system totally based in principles that were completely different.

The general orientation and instructions received from Dr. Morton for four days before the start of the program were indeed of great value to us, and aided us in understanding the informative principles of the program and the fundamental objectives of the same; but, of course, did not give us the experience that only practice can give.

And so we started the program. We soon realized that to really know its structure and see how its scientific principles operated, we had to attend the program as another student.

We so did, listening to each and everyone of the recordings before they were listened to by the students. This was the only way to acquire complete mastery of the program, and also the only way of becoming familiar with the pronunciation taught by the program and then try to modify our own pronunciation to the utmost of our ability.

It is certainly true that the periodic visits of Dr. Morton helped us greatly and facilitated our work, but experience, the great teacher, taught us something new each day, showing us the way to follow in our investigation.

We have made these observations to ask this question: If we would have had at the beginning of the program, the great experience that we today have, would we have acted in all cases in the same way we acted? The answer is negative. And it is obvious that we would have saved a lot of time not having to look for solutions known by experience.

Now, if all the causes that delayed the program in relation to the estimated 538 hours were put to work, we must admit that each and everyone, although in different degrees, played a part in increasing the number of hours.

We, through our own direct and personal experience, estimate the possible influence of these delaying causes in the following manner:

1. The deficiency of the equipment used: 7% to 12% of the total number of hours worked.
2. The false notations or errors in the "Charts," 6% to 9%.
3. The Display Sessions, 7% to 10%.
4. Inexperience, 3% to 5%.

Taking the smallest of the two percents given, we obtain a total of 24% delaying influence in the Program.

Applying the 24% to 538 hours, we obtain a result of 129 hours, which represent the increase of time due to the delaying causes.

If we subtract 129 hours from 538 hours, the total number of hours is 409.

These 409 hours represent the general average of time invested if we had worked in the program without the four delaying causes.

Out of these 409 hours, the time invested by the students would have been between a minimum of 224 hours (6.89 minutes per frame) and a maximum of 449 hours (13.82 minutes per frame.)

We would thus have obtained a result adjusted to the Prescriptions of the Program, with several cases of exceptional speed and a majority of slower speed, with an exceptional case of 150 hours of Response Time. This last case would have been the student P.R. with an average of 11.47 (see information chart #2 in this chapter). When we apply the 24% to this average, it is reduced to 6.89 minutes per frame, and when we multiply the time by the 1949 frames that constitute the program, we get a total of 224 hours necessary to finish the program. If we take from the 224 hours those of working time, we have to accept that there would have been a case of 150 hours of Response Time. To this respect, the prescriptions of the program state: "The minimum Response time for working through the Spanish Program is 150 hours. No one has yet completed the program in this time, and we don't expect anyone to ever do so."

To conclude this Chapter we state the following:

1. The experimental program, developed under the influence of delaying causes at Culver-Stockton College, requires four academic semesters for its termination.
2. The same program, developed, without the influence of the delaying causes, would only require three academic semesters for its termination, with an average of 8 to 9 hours of work per week; and working an average of 12 to 13 hours per week, it could be finished in one academic year.

FINAL CONCLUSIONS

The experimental Program functioning at Culver-Stockton College during the academic year 1965-66, and not finished due to causes which originated its discontinuance at the beginning of the first academic semester of the 1966-67 academic year, can be considered a success from the standpoint of proofs it has given about the effectiveness of the scientific principles which guide it.

There is not much to say in the final conclusions since in each one of the six chapters of this report we studied the different aspects of the Program, and in each case we stated our conclusions.

Consequently, we will not repeat those conclusions, but we will give the ideas that they have given us about the future of the program and its possible modifications.

In accordance with our estimates on Chapter VI, we state the following:

1. The program, without the delaying causes, with an average of 8 to 9 hours of work per week, requires three academic semesters for its termination.

2. The same program, under those favorable conditions, with an average of 12 to 13 hours of work per week, could be terminated in one academic year.

In the first case the program would have to be interrupted for three months (June, July and August), and for this reason we cannot recommend it, since we already know the influence of such interruptions, as can be seen in the first chapter of this report.

The second case, while it is true that the program would not be interrupted, cannot be recommended either because to assure the termination of the program on the basis of excessive work, 12 to 13 hours per week, if we take into consideration the other academic obligations of the students, the estimate is not acceptable from the viewpoint of reality.

The ideal solution would be to reduce the extension of the program in such a manner that its termination would be possible within an academic year working no more than 10 hours per week.

Before going ahead, we consider it necessary to repeat our criteria about the great scientific truth that the program encloses, and its effectiveness in attaining its objectives, as has been proved at Culver-Stockton College, regardless of the many problems encountered and of its definite interruption.

It is precisely because we have faith in the program, and more so in its author, Dr. Morton, that we take the liberty of making a few suggestions, not to better the program, but to adjust it to the reality that experience has taught us during a year of work.

Let us analyze first the fundamental objectives of the program: Oral Comprehension and Vocalization.

In Task I (Phonematization) the students learn to recognize the Spanish sounds, and to distinguish them from non-Spanish ones, preparing them in this way for future oral comprehension.

The result of this first fundamental phase of the program is extraordinary. We have already explained the surprise and profound impression we experienced when seeing that the students reproduced in writing, through phonetic symbols, the most difficult combinations of

Spanish sounds dictated by us. There is no doubt - as the program states - that a pair of "Spanish ears" is given to the North American students.

In this initial phase of the program the rules are strict and hard to follow. The students remain in absolute silence, they are forbidden to vocalize the sounds they hear; they are told that later on they will be taught to vocalize them correctly.

We cannot doubt as to the goodness of these techniques; the results justify them completely. But we do want to bring about the antinatural parts of them, which we could see in the attitude and reaction of the students in the process of phonematization.

The continuous repetition of the sounds and their ability to know and distinguish them better each time, gives them an ardent desire of vocalizing the sounds they hear. They have to make a great effort not to vocalize and so to comply with the rules of the program. But at times, regardless of the rules and of the students' purpose of complying with them while writing the symbols on the blackboard, unconsciously,as an instinctive reaction, they vocalized in a low voice the sounds represented by the symbols they were writing. When we called this to their attention, their reaction was one of surprise and every time they asked us to disregard their "Distraction."

As can be seen, the antinatural character of this rule, is as undeniable as the marvelous results obtained by it.

And we ask: Is this need of the students to vocalize the sounds showing the possibility of teaching the vocalization of these sounds as soon as the students know and distinguish them?

If the interest, one of the principal motivations of all learning presents itself, in this case, as a natural consequence of the knowledge of the sounds, why not channel this interest and satisfy this need in an immediate manner?

We are aware that the process of teaching the sounds is different from that of teaching vocalization because the linguistic principles so indicate.

For example, Task I (Phonematization) starts with the sound a, dedicating 20 frames to teaching how to recognize and distinguish this sound. Then we start with sound t and all its possible combinations with sound a, through 25 frames. The study of the sound of D (fricative) and its combinations with the other sounds is taught next. The study of e follows, and so on until all the Spanish sounds are taught.

Task II (Vocalization) starts by teaching sound a in all its possible combinations, introducing the stress and other aspects of vocalization. Then the m sound is taught with all its possible combinations with sound a. The n sound follows, then f, t, k, x, and l. And immediately the study of the sound o starts, and so on until the vocalization of all the Spanish sounds have been taught.

As can be seen, the teaching of sound a, because of its difficulty for the English speaking students, starts both processes, but in the vocalization it is followed by the sounds m, n, and f very easy to vocalize with sound a; this is not so in phonematization, where the sound a is followed by t, very difficult to pronounce for North Americans. In the phonematization process fricative d is taught, which is indeed very important in eliminating the tendency of its substitution for the sound of the English r.

The second vowel introduced in vocalization is e, relatively easy to pronounce, not so in phonematization which introduces o, one of the hardest.

This demonstrates that the vocalization follows an ascending line of difficulties, while phonematization starts with the most difficult sounds.

Could the phonematization technique be used to teach how to recognize and distinguish the sounds in the order established for the vocalization, uniting both processes in one?

Of course, many modifications and adaptations would have to be made in both processes in order to unify and systematize them. The technique would be, for example, to teach how to recognize and distinguish the sound a through a process less extensive than the one now in effect, and immediately after proceed to teach its pronunciation. We would then teach the sounds m and n (in these cases, due to its fewer difficulties, through a shorter process), and immediately after their pronunciation would be taught, and so on until all the Spanish sounds are recognized, distinguished and vocalized.

Having hypotetically united both processes, let us now analyze vocalization, the other fundamental objective of the program.

The program establishes, as one of its objectives, that all students would emerge from the program speaking as natives. It does not admit as possible, since it does not mention it anywhere, any other level of efficiency in pronunciation. The program goes after the perfect, and employs an adequate technique to achieve it; but seeking the perfect, it sometimes forgets the person that will be the subject of such perfection. Considering, and with reason, that the meaning

affects the perfection in vocalization, it delays its introduction until the extreme of breaking the inhibitions created by the same program in the students so they could patiently suffer, being adults, the antinatural process they were going to be submitted to, provoking the expression of their natural reaction of rebelliousness so long kept silent, and also the rise of a feeling of frustration.

The error resides, we believe, in facing this objective from the standpoint of absolute perfection; the error is not in the principle that informs it. The program establishes that, if the rules are kept, the results will necessarily be obtained, and that if these results are not obtained, it is due, only and exclusively to the fact that the rules were not kept.

Such an affirmation is so explicit that it makes us think of the infallibility of the principle that sustains it. The principle says that all human beings potentially possess the same natural conditions to react automatically to scientifically organized stimuli. So, compelled by this principle, based on human nature, and trusting in the science and technique of its procedure, the program goes after the perfect, avoiding all which can impede its attainment.

But we, facing the reality seen in one year of work, doubt the infallibility of this principle. Our experience is very limited because of the number of students and the time, but it is our experience, and based on our own experience we must honestly state our conclusions.

We believe that not all human beings have the same natural conditions in potency, to react automatically to scientifically organized stimuli, and consequently, regarding the program, all those students with certain conditions who follow the rules, will attain the result of perfection;

and those who do not have such conditions, although they keep the rules, will not attain the perfection of those who do.

Taking this new principle as our starting point, the program could modify its objective regarding vocalization, and establish that approximately 90% of the students would emerge from it speaking as natives and almost as natives (see our estimates in Chapter VI); and the rest would emerge speaking not much like a native or far from a native. And thus the obsessive idea of the perfect would be eliminated, accepting then the interference of nature as a negative factor in the possible results of the process of vocalization.

And consequently, with this more flexible idea, the introduction to the meaning would not be so much delayed; for while it affects the vocalization, it does not do it in such a way as to motivate a change in the evaluation and previous classification of the students.

But we, wanting to penetrate more this problem of the introduction to the meaning, ask ourselves: Why not leave aside all negative effects, submitting them to the technique of the program, teaching vocalization?

Why not try to develop a perfect vocalization with the extra-ordinary stimuli of the knowledge gradually acquired through images representing the same?

Summarizing our ideas about possible modifications, we state the following:

1. Use and adapt Task I (Phonematization) to Task II (Vocalization), and organize only one process which would teach the vocalization of each Spanish sound immediately following its recognition and distinction.

2. Introduce the meaning on the second part of lesson two of the aforementioned combined process. We refer to the time when the sound m is taught with its combinations with the sound a. The technique would be to present the greatest possible number of utterances with meaning, and teach the meaning through an image or figure representative of it.

This combined process could reduce the 700 Frames in Task I and II in more than 100 Frames. This estimate is made somewhat arbitrarily. And, of course, the Tasks would be interesting to the students; and when finished with these Tasks, they would feel more enthusiasm than in the beginning because the result, when compared with their efforts, would constitute the best of stimuli.

Not suffering the tension caused by antinatural rule, with their nerves relaxed and in high spirits, the students would commence Task II, which would be in accord with the ideas we are here stating Task II.

The introduction of the meaning from the beginning of the program, as we have already pointed out, would require a revision of certain aspects of Task III, in order to avoid unnecessary repetitions or the circumlocutions used in relation with certain meanings that the students would have already known by means of the combined process.

Task III could be shortened, not altering, of course, its unsurpassable technique in the gradual introduction of the students to the structure of the language. The elimination of a series of frames, most difficult indeed, and not very practical, would help in this reduction.

And consequently, the revision and reduction would have to be made also of Task IV (Structural Patterns).

We think of a program with no more than 1600 Frames, with a total of 320 hours of work, and an average of 12 minutes per frame. These 1600 Frames, divided into the 34 weeks of an academic year, would give a quotient of 48 frames per week, work to be done by the students in more or less time, according to their own speed and natural conditions, but probably all of them can work these 48 frames in 10 hours.

We think of a program containing in its pedagogy, the maximum of possible motivations to gradually increase the interest of the students; in a program that would transmit to the students, after the first week of work, the feeling that the course can be finished with relative ease; in a program estimated in such a manner that it allows the students, after doing their daily work, to experiment the feeling of having advanced in accord with the average established, so to finish in the date prefixed. We think of a program that would not cause tension and anxiety with rules that impede their natural reactions; in a program which would not allow the students to doubt as to its efficiency when comparing the results of their efforts with the results obtained through other teaching methods, giving them a certain amount of knowledge to prevent this feeling of frustration so negative in all aspects of human endeavors.

We think of a program in which the students would feel happy and growing in enthusiasm day by day; a program where the number and quality of its stimuli in relation with its possible termination, would make the students work harder in order to finish it before the time estimated; finally, of a program better adjusted to the intellectual and emotional maturity of the students; a program which uses all the psychological means available to allow the students to learn without tension.

Our report comes to an end, but before we conclude, we want to state our opinion regarding its scientific worth.

It is after a year of work, dedicated to the study and observation of 32 students, that we formulate our ideas, opinions and conclusions.

It is not scientific to infer principles of a general character from the observation of a small number of particular cases. The scientific value of the principle is connected with the extension of its experimentation.

Our conclusions, as a consequence, have to be studied from the standpoint of its relative scientific worth.

The detailed observation and analysis of the facts can increase the practical utility of the result, but does not give it any scientific value.

Finally, our work can be considered as a small scientific demonstration, or as a contingent proof, or simply as a serious advice regarding the necessity of undertaking other more extensive investigations.